

[The page numbers of the original published article are indicated by demarcating the respective numbers with single square brackets in the text.]

The place and meaning of *Kant's Critique of pure reason* (1781) in the legacy of Western philosophy.¹

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(Published in die *South African Journal for Philosophy*, 1982)

Summary: Kant's Critique of pure reason (1781) represents an important turning-point in the development of modern philosophy. Before Kant we see the rise of the ideal of the autonomous personality which used, in order to proclaim its freedom, natural science as an instrument to dominate nature. Indeed, Kant tried to consolidate and strengthen the preceding natural science-ideal, but in the restricted form of the rationalistically elevated understanding which – though limited to sensibility in order to save a separate super-sensory domain for the practical-ethical freedom of autonomous man – is considered to be the a priori (formal) lawgiver of nature. The nominalistic roots of this conception are seen from the fact that he did not merely transpose the universal side of entities into human understanding, since he actually elevated human understanding to the level of the conditioning order for things: 'understanding creates its (a priori) laws not out of nature, but prescribes them to nature.' Systematic distinctions drawn by Kant are repeatedly related to their historical roots and evaluated by means of immanent criticism (for example in connection with the problems of his Transcendental Dialectics). The influence of this work is mentioned with reference to some philosophical trends and some special sciences (sociology and mathematics). In conclusion a critical appraisal is given of the opposition between analysis and synthesis. *South African Journal of Philosophy* 1982, 1:131-147

Opsomming: Die *Kritiek van die suiwer rede* (1781) verteenwoordig 'n belangrike keerpunt in die ontwikkeling van die moderne wysbegeerte. Voor Kant vind ons die opkoms van die ideaal van 'n outonome persoonlikheid wat, om sy vryheid te bevestig, die natuurwetenskap gebruik het as 'n instrument om die natuur mee te beheers. Hoewel Kant hierdie natuurwetenskapsideaal wou konsolideer en verstewig, het by tegelyk die gelding daarvan beperk tot sintuiglik-waarneembare verskynsels wat in die verstand hul formeel-aprioriese wetgewer vind. Deur hierdie beperking wou Kant die bo-sintuiglike steer van die mens se praktiese etiese vryheid en outonomie red. Die nominalistiese wortels van Kant se siening van die verstand blyk daaruit dat hy nie alleen die universele sy van dinge verplaas het na die menslike verstand nie, maar inderdaad ook die verstand verhef het tot die vlak van bepalende orde vir die verskynsels: 'die verstand skep sy (a priori) wette nie uit die natuur nie, maar skryf dit daaraan voor.' Sistematiese onderskeidinge van Kant word telkens aan historiese agtergronde verbind en immanent-krities belig (bv. met betrekking tot die problematiek van die *Transendentale Dialektika*). Ten slotte word gewys op enkele fasette van die invloed van hierdie werk op die moderne wysbegeerte en op enkele vakwetenskappe (soos die sosiologie en die wiskunde), terwyl afgesluit word met 'n kritiek op die teenstelling van *analise en sintese*. *S.Afr. Tydskr. Wysb.* 1982, 1: 131 – 146

*The whole interest of my reason,
whether speculative or practical,*

¹ Originally read as a paper at the plenary session of the 8th annual congress of the *Philosophical Society of Southern Africa*, at Johannesburg, January 1981. It appeared in *South African Journal for Philosophy*, 1982 (pp.131-146).

is concentrated in the three following questions:

- (i) *What can I know?*
 - (ii) *What should I do ?*
 - (iii) *What may I hope?*
- (Kant, 1781: 805-806.)

1. Introduction

Not only in his own intellectual development, but also in that of modern philosophy, the appearance of Kant's *Critique of pure reason* (CPR) in 1781 marked a most important turning point. The ever-expanding influence of this work in the subsequent development of Western philosophy, and even in various special sciences, surely makes it a worth while undertaking to come to a reappraisal of this preeminent Critique at its bicentenary. On the one hand, Kant's CPR manifests the convergence of divergent streams of thought in the philosophical tradition that precedes his contribution, and on the other hand it has had a tremendous effect on the following theoretical heritage of the West up to our present day. In this paper I shall first of all concentrate on the underlying paradigm of the CPR and then, afterwards, pay attention to the ongoing influence it exerts. However, to understand its basic structure, it is necessary constantly to account for the effect of earlier philosophers on the CPR. It stands to reason, furthermore, that the scope of this paper implies a certain selection from the available material.

2. The ultimate basic problem of the CPR

It is impossible to understand the basic tenet of Kant's CPR without taking into account the way in which modern philosophy has departed from medieval philosophy. A brief survey of this development should explain the following: Thomas Aquinas tried to synthesize the Aristotelian *lex naturalis* (with its dual teleological order) with certain fundamental biblical motives – ending with an idea partly inspired by St. Augustine which related the *lex naturalis* to a transcendent *lex aeterna* as the plan of creation in the divine Mind. The true being of things are given as ideas in God's Mind. In a derivative and limited form individual things participate in the being of God – for every individual thing there is a corresponding idea in God (*Quest. Disp. de Ver.*, III, 8). This realistic metaphysics of St. Thomas, via St. Augustine and neo-Platonism, related to [132] Plato and Aristotle, and even to the pre-Socratics, was itself soon confronted with the emerging realism/nominalism controversy of the 13th and 14th century.

St. Thomas considered *universalia* to have a threefold existence: *universalia ante rem* (the real existence of ideas before the creation in God's Mind); *in re* (in the things as their universal substantial forms) and *post rem* (their subjective existence in the human mind as universal concepts). Emphasizing the primacy of the will (as opposed to St. Thomas's choice for the primacy of the intellect), Ockham only acknowledged the subjective existence of universals in the human mind (*mente humana*), encompassing both words (*voces*) and general concepts (*conceptus*) since every universal is a purely mental quality, no universal can really exist outside the mind (*Summa logicae* I, 14). (Since Aristotle's primary substance indicates something *individual*, therefore distinct from the *universal* secondary substance (*Cat.* 3 b 10 ff.), Ockham considered his own position to be a return to the true Aristotelian one!) Universals are simply substitutes, referring in a signifying way to the multiplicity of individual things. Nothing but individual things exist in reality. Science, however, is concerned with universals (as the subjective universal image of the real individual entities). As opposed to the realistic conception of truth (*adequatio intellectus et rei*), nominalism shifted the criterion to the inner activity of the human mind – truth concerns the compatibility of concepts. In this way Ockham contradicted the realistic view of reality, including its appraisal of the church as a supernatural (universalistic) institute of grace – life-forms are simply *universalia* representing a collection of truly existing *individuals* – therefore the reality of the church is reduced to a mere collection of believers (*congregatio fidelium*).

This nominalistic movement provided the starting-point for modern philosophy which tries to emancipate modern man from the authority of church belief (and the Pope). This tendency has led to the complete secularization of the notion of freedom. Man should be freed from God's law as well as from the authority

of the Pope, and nature should be freed from the Greek idea of fate and from the Christian idea of sin. Modern Renaissance man must view natural reality as the field of exploration of his free and autonomous rationality. The objective world-order no longer guarantees my existence – the world can only appear as an object of my self-assured thought. Man has become a law unto himself – as Rousseau (1975:247) later formulated this idea of autonomy, 'obedience to a law which we prescribe to ourselves is liberty.'

Various natural scientific discoveries and philosophers of nature created the idea that the autonomous freedom of man could be strengthened with the aid of the newly developing natural sciences. To proclaim its freedom, autonomous personality used natural science as an instrument to dominate nature.

In his *Discourse on method* Descartes mentioned (Part I) that he 'was especially delighted with the mathematics, on account of the certitude and evidence of their reasonings.' In this connection we must remember that Descartes's universal skepticism (excluding self-consciousness!) was closely related to his invention of analytical geometry. Mathematical calculation and reasoning found their origin in the sovereignty of thought (endowed with 'innate ideas' like the ideas of God and ourselves). Intuition (*intuitus*), as the indication of that which can be grasped *clearly and distinctly*, is not only related to mathematics, since it is viewed as a faculty that necessarily precedes every deduction – only that which is immediately intuited is true.²

Compare in this context Descartes's four precepts for reasoning (*Discourse*, Part II) with the thought-experiment of Hobbes in the 'Preface' of his *De Corpore*. In terms of the Genesis account of creation, Hobbes described a total methodological breakdown of reality in order to enable human reason, starting from the simplest elements of thought, to reconstruct it. Thus a new motive in the history of Western philosophy emerged, namely that of *logical creation*. As such it was an outcome of the underlying deification of mathematical natural scientific thought (the idea of the *intellectus archetypus*), taken to its extreme by Leibniz.

In spite of the selection of divergent basic denominators, pre-Kantian philosophy from Descartes onwards constantly tried to reduce reality to some or other facet of nature. Although Descartes distinguished between two mutually exclusive substances (viz. *res cogitans* and *res extensa*), his emphasis on the maxim that our ideas should be *clear* and *distinct* (considering clearness to be more fundamental than distinctness – cf. *Principles*, XLVI), remains orientated towards mathematics as model of thought. Even the certainty that God exists is only accomplished by clear and distinct understanding – showing, in the final analysis, that he used the idea of God to furnish his deified mathematical thought with the feature of *certainty*, thus stamping the *infallibility* of the new mathematical method of analysis. Having mentioned Galileo's mathematization of nature and modern physicalistic rationalism (p.66 ff.), E. Husserl characterized this new phase in modern philosophy as giving birth to a rationalistic ideal of science ('rationalistischen Wissenschaftsideal' – cf. *Die Krisis der europäischen Wissenschaften und die transzendente Phänomenologie*, in *Husserliana* Vol. VI, The Hague 1954, p.119). Hobbes in fact reduced the whole of temporal reality to the basic denominator of mechanical movement (as such, a characteristic feature of classical physics). Even the human soul is seen as a mechanism of feelings *in motion*.

With the rise of classical physics, a deterministic world-view came to the fore – ultimately implying that whatever happens is completely determined by prior causes. A closed and fully determined nexus of causes and effects seemed to be the unavoidable outcome of this rationalistic natural science-ideal. The empiricistic (psychologistic) critique on the principle of causality, starting with Locke and culminating in Hume's skepticism, only indicated a turn *within* the science-ideal, i.e. a shift to the new basic denominator of *sensory perception*. Hume declared: 'To hate, to love, to think, to feel, to see; all this is nothing but to perceive,' (1740, I, II, VI). (Compare the opposite position of Descartes: "At all events it is certain that I seem to see light, hear a noise, and feel heat; this cannot be false, and this is what in me is properly called perceiving (sentire), which is nothing else than thinking" – Meditation II.)

² Cf. my analysis of Descartes's thought on p.15-29 in: Strauss, D.F.M. 1980. *Kompendium vir studente in die wysbegeerte en wysgerige pedagogiek*. Deel III. Durban: Butterworth.

In his *Prolegomena zu einer jeden kunftigen Metaphysik* (1783), Kant acknowledged that the influence of Hume for the first time broke his “dogmatic slumber” (Preface). Of [133] course this does not mean that Kant accepted this critique on the law of causality. In agreement with Hume the opening sentence of the 'Introduction' to the second edition of the CPR stated: 'There can be no doubt that all our knowledge begins with experience' (B,1).³ But contrary to Hume's position, Kant's subsequent exposition clearly stressed the fact that not all knowledge is a *result* of experience, since our understanding makes an equal contribution by providing certain *a priori* concepts (categories), such as that of cause and effect. The application of this category (of Relation) is strictly limited to *sensibility* (with its *a priori forms* of intuition, viz. space and time, ordering sense-phenomena in a receptive way). This restriction is intimately related to the distinction between 'things in themselves' (Dingen an sich) and 'appearances' (Erscheinungen). The category of cause and effect (together with all the other categories) is only applicable to appearances and *not* to things in themselves (such as the free will of the human soul). Kant indeed realized that an unlimited employment of the category of causality (of course understood in a deterministic sense!) inevitably implies the abolition of all freedom. Against the background of our preceding exposition we are now prepared to appreciate the ultimate basic problem of Kant's CPR as it is provisionally explained by him in the 'Preface' to the second edition:

'Now let us suppose that the distinction, which our Critique has shown to be necessary, between things as objects of experience and those same things as things in themselves, had not been made. In that case all things in general, as far as they are efficient causes, would be determined by the principle of causality, and consequently by the mechanism of nature. I could not, therefore, without palpable contradiction, say of one and the same being, for instance the human soul, that its will is free and yet is subjected to natural necessity, that is, is not free. For I have taken the soul in both propositions *in one and the same sense*, namely as a thing in general, that is, as a thing in itself; and save by means of a preceding critique, could not have done otherwise. But if our Critique is not in error in teaching that the object is to be taken *in a twofold sense*, namely as appearance and as thing in itself; if the deduction of the concepts of understanding is valid, and the principle of causality therefore applies only to things taken in the former sense, namely, in so far as they are objects of experience – these same objects, taken in the other sense, not being subject to the principle – then there is no contradiction in supposing that one and the same will is, in the appearance, that is, in its visible acts, necessarily subject to the laws of nature, and so far *not free*, while yet, as belonging to a thing in itself, it is not subject to that law, and is therefore *free*' (B, xxvii-xxviii).

Kant's ultimate concern to safeguard the (autonomous) *freedom* of man necessitated this distinction between appearance and thing in itself. This is most evident from the entire Transcendental Dialectic. In his discussion of the solution of the third cosmological idea he once more explained that we are not allowed to ascribe any absolute reality to appearances: 'The common but fallacious presupposition of the *absolute reality* of appearances here manifests its injurious influence, to the confounding reason. *For if appearances are things in themselves, freedom cannot be upheld*' (my italics in the last sentence – D.S.; 564; 'Denn, sind Erscheinungen Dinge an sich selbst, so ist Freiheit nicht zu retten').

The final remark of this subsection reveals the basic motive of Kant's whole CPR:

'My purpose has only been to point out that since the thoroughgoing connection of all appearances, in a context of nature, is an inexorable law, the inevitable consequence of obstinately insisting on the reality of appearances is to destroy all freedom. Those who thus follow the common view have never been able to reconcile *nature and freedom*' (my italics, A,537, B,565).

³ The standard practice is followed in referring to the first edition of CPR with an A and to the second edition (1787) with a B.

The italicized words in the previous quotation indeed indicate, in Kant's own words, that the basic motive of *nature and freedom* lies at the root of his CPR. In fact, this freedom motive was operative in modern philosophy since its very beginning. We have mentioned that, to proclaim this freedom, the ideal of autonomous personality used the natural sciences as an instrument to dominate nature. However, this freedom motive (personality-ideal as it is called by Dooyeweerd – cf. 1969; vol. 1: 190 ff.), which, almost with an inner necessity, gave birth to the domination-motive and the science-ideal (nature motive), finally came into conflict with itself. If the whole of reality, by means of 'reconstructing creative thought' could be framed in terms of exact and inexorable natural laws of cause and effect (universal determinism), it stands to reason that *the freedom* of the supposedly autonomous personality is reduced to, and determined by, invariable causal laws of nature without any freedom at all! The science-ideal turned out to be a real Frankenstein – demonstrating the inherent dialectic between the freedom-pole and the nature-pole in modern philosophy. This *dialectical* ground-motive of nature and freedom has indeed become the ultimate driving force behind the development of modern Humanistic philosophy up to its 20th century variants. Since Kant's CPR explicitly sets out to reconquer the lost territory of the freedom motive, which since Descartes was overruled by the primacy of the science-ideal, we are justified in our claim that this work of Kant's portrays a most important turning point in the development of modern philosophy.

3. The internal structure of the CPR

In this section we want to examine the theoretical distinctions used by Kant's Critique in service of the restoration of the ideal of free and autonomous personality. If necessary, excursions into the historical background of problems will be undertaken.

3.1 Kant's attitude to the science-ideal

At the beginning of our discussion we mentioned the three questions of interest for our reason, according to Kant. The first was: What can I know? The answer to this question is implicit in what we have already discussed: if freedom is to be saved, we must restrict our understanding and knowledge to nature (as the sum-total of all appearances). To comprehend this move of Kant's one should [134] remember that, with respect to the sphere of sensory perception (i.e., sensibility, identical with nature), Kant still adhered to the legacy of the science-ideal. Knowledge of nature is therefore, amongst other things, only possible when thought-categories are united with sense-material – and we have mentioned the fact that one of these categories is the concept of causality (cause and effect) (cf. A, 80). Consequently, the science-ideal is not abolished, but merely *limited* to sensibility. Whatever transcends the realm of sensibility cannot be *known*, although it is possible to *think* it as a thing in itself (B. xxvii). Though I cannot *know*, I can yet *think* freedom (cf. B. xxviii). (Later we will see that the instrument used to *think* the unknown, is introduced as the transcendental Ideas.)

In the limited use of our understanding, Kant nevertheless wanted to *strengthen* the universal validity of the science-ideal, and in doing that he incorporated central elements of his modern predecessors in his systematic account.

He agreed with Hume that all knowledge begins with experience. But it does not follow that all knowledge arises out of experience (B. 1). Our faculty of knowledge may just as well supply us with knowledge which is independent of experience and even of all impressions of the senses. Such knowledge is entitled *a priori*, and distinguished from the *empirical*, which has its sources *a posteriori*, that is, in experience (B,2). On the basis of his distinction between the two stems of knowledge, namely *sensibility* and *understanding*, Kant later on in the Critique introduced the necessary pure concepts (Categories) of the understanding which apply *a priori* to objects of intuition in general (B,105-106). These *a priori* categories, when combined with the modes of pure sensibility, or with one another, yielded to Kant a large number of derivative *a priori* concepts, although he did not attempt to give a complete inventory of such concepts (cf. A,82). The ordinary employment of our understanding gives us for example the proposition: 'every alteration must have a cause' (B,5). In this case the very concept of a cause so manifestly contains the concept of a necessity of connection with an effect (and of the strict universality

of this rule), that Kant could not follow the attempt made by Hume, to derive it from a repeated association of what happens with what precedes, and from a custom of connecting representations, constituting therefore a merely subjective necessity (B,5).

3.2 *The historic roots of a priori concepts*

In early Greek philosophy Parmenides started with the undifferentiated, cohering wholeness of *being* (Diels-Kranz, *Die Fragmente der Vorsokratiker*, 9th edition, B Fr. 8, 3-6), and identified it with thinking (B Fr. 1). Empedocles divided *being* into four forms (the elements Fire, Air, Earth and Water). The atomists (Democritus and Leucippus) even accepted the existence of an indefinite number of static and unchangeable forms of being (atoms). Plato introduced his Ideas (forms of being) to account for the knowability of sensorially perceptible things. Aristotle transformed these ideas into the immanent universal substantial forms of entities (secondary substances).

Plotinus combined the Platonic ideas with Aristotle's conception of God (namely as being engaged in eternal thought), thus the transcendent realm of Platonic ideas indeed furnished his second 'hypostasis,' the *Nous*, with unity-in-the-multiplicity (cf. *Enneade* V,9,8, 12 and V,5,6,3). Augustine finally placed the multiplicity of essential forms (ideas) as the transcendent being of things in God's Mind. This view played a dominant role in medieval philosophy until Ockham objected to the view of St. Thomas that matter was subjected to a 'natural ordering' according to the eternal forms (ideas) in God's Mind.

With the rise of modern philosophy these ideas in God's Mind were transferred into the human mind as *innate ideas* (eternal truths). Their new location left their character as *universals* intact, although the former realistic assumptions were replaced by nominalistic ones. Descartes, using 'universals' as the equivalent of 'general ideas' (*Principles*, Part 1, LVIII), assigned to universals only a place in human thought: 'number and all universals are only modes of thought' (ibid.). This nominalistic orientation explains the fact that for him 'contradiction' exists 'in our ideas alone' (cf. *Descartes's conversation with Burman*, translated by J. Cottingham, Oxford, 1976, p.25). Both the idea of God and the idea of myself are innate (Med. III). In the conversation with Burman we encounter the following remark by Descartes, referring to himself: 'By "eternal truths" the author here means what are called common notions, such as "it is impossible for the same thing to be and not to be", and so on' (op. cit., p.34). Locke directly opposed this notion (cf. 1689, 1, ii, 4). To him ideas are only furnished by *experience*: 'In that all our knowledge is founded, and from that it ultimately derives itself' (1689: 11, i, 2). The contents of our understanding stem from *sensation* and *reflection*, since, according to Locke, to have ideas and to perceive, are the same (11, i, 9). Universals, therefore, whether ideas or terms, are formed by abstraction and function as 'general representatives' of particular beings of the same kind (11, vi, 9).

However, Locke did not completely succeed in freeing himself from the powerful heritage of *a priori* ideas. The distinction made by him between empirical factual knowledge and knowledge of the necessary eternal relations between ideas (IV, i, 9), as well as his introduction of *intuition* as the foundation of exact scientific knowledge (for instance in the demonstrations in mathematics – cf. IV, ii, 115), contradicted his empiricistic intentions, for, with the aid of intuitive demonstration, one after all is enabled to arrive at the clearest and most certain knowledge of which human frailty is capable.

This position reminds us of Leibniz's distinction between *necessary truths of reason* and *contingent truths of fact* (1714 33 ff.). In this extensive commentary on Locke's *Essay*, published nearly fifty years after his own death in 1765, Leibniz has provided us with formulations that show fascinating similarities with the position of Kant. Consider the following statement by Leibniz:

'Now reflection is nothing but an attention to what is in us, and the senses do not give us what we already bring with us. This being so, can we deny that there is a great deal that is innate in our mind, since we are innate, so to speak, to ourselves, and since there is in ourselves being, unity, substance, duration, change, activity, perception, pleasure, and a thousand other objects of our intellectual ideas? And since these objects are immediate to our understanding and are always present ..., why be surprised that we say [135] that these ideas, and everything which depends on them, are innate in us?' (*New essays*, Introduction,

published in: Leibniz, *Philosophical writings*, translated by Mary Morris, London, 1965, p.146, cf. p.173).

It is known that early in his intellectual development Kant was strongly influenced by Leibniz. Therefore, the claim by J. Bennett, namely that we should 'not credit Leibniz with any Kantian insight about the need for intellectual structure' is a bit farfetched (*Kant's Dialectic*, Cambridge University Press, 1974, p.37). Almost anticipating Kant's criticism of Hume's empiricism, Leibniz, more than thirty years before the first appearance of Hume's *A treatise of human nature* – (1739) (his: *An inquiry concerning human understanding* appeared in 1748), wrote as follows in his mentioned *New essays*:

'Now all the examples which confirm a general truth, whatever their number, do not suffice to establish the universal necessity of that same truth, for it does not follow that what has happened will always happen in the same way' (quoted from the sections republished in the work, *Innate ideas*, edited by S.P. Stich, London, 1975, p.45, cf. CPR, B,5).

In following Descartes, who equated perceiving (sentire) with thinking (Med. II), Leibniz on the one hand rooted sensibility in our understanding, and on the other hand reduced it to having a partly confused function: 'But the ideas which come from the senses are confused, at least in part; while the intellectual ideas, and the truths dependent on them, are distinct' (S.P. Stich, *op. cit.*, p.53).

In spite of the similarities between Leibniz and Kant, there are also important *differences*. Firstly, it was imperative for Kant, in order to limit our understanding to sensibility, to accept the latter as an independent stem of our knowledge. And secondly, he considered it to be necessary to relate sensibility only to appearances in order to avoid the mistake of viewing space and time (and the thought-categories) as determinations of *things-in-themselves*, since in that case freedom could not be upheld. Kant's critical remark in relation to Leibniz's doctrine of time and space sufficiently stated these points:

'Thus space and time were for him the intelligible form of the connection of things (substances and their states) in themselves; and the things were intelligible substances (*substantive noumena*). And since he allowed sensibility no mode of intuition peculiar to itself but sought for all representation of objects, even the empirical, in the understanding, and left to the senses nothing but the despicable task of confusing and distorting the representations of the former, he had no option save to treat the concepts as being likewise valid of appearances' (B,332).

3.3 Internal structure of CPR

After the introduction of the distinction between a priori and a posteriori, the CPR sets out to explain another important distinction, i.e. that between *analytic* and *synthetic judgment* (B,10 ff.). If the relationship between the subject and the predicate of a judgment is such that the predicate is (covertly) contained in the concept of the subject, the judgment is called *analytic*, and if not, *synthetic*. To Kant this background is sufficient to formulate the general problem of Pure Reason: 'How are *a priori* synthetic judgments possible?' (B,19). Since all theoretic sciences contain, according to Kant, synthetic judgments *a priori* the possibility of the latter should first of all be applied to mathematics and physics by answering the questions: How is pure mathematics possible? and: How is pure natural science possible? (B,20).

Since human reason, without being moved merely by the idle desire for extent and variety of knowledge, proceeds impetuously, driven on by an inward need, to questions such as cannot be answered by any empirical employment of reason, Kant is convinced that we cannot be satisfied with this mere natural disposition to metaphysics. We must decide whether we may either with confidence extend our pure reason, or set to it sure and determinate limits. This general problem, rightly stated, may take the form: How is metaphysics as a science possible? (B,22).

These three questions indeed form the cornerstones for the main subdivisions of the CPR. The question how *a priori* synthetic judgments are possible in mathematics is answered in the *Transcendental Aesthetic*, the second question is answered in the *Transcendental Analytic* (being the first division of the *Transcendental Logic*), whereas the last question is considered in the *Transcendental Dialectic* (the

second division of the Transcendental Logic). Although the term *transcendental* is used in a variety of ways in the CPR, we mention in this connection only the following meaning attached to it by Kant: 'I entitle *transcendental* all knowledge which is occupied not so much with objects as with the mode of our knowledge of objects in so far as this mode of knowledge is possible *a priori* (B,25).⁴

Without entering into a detailed discussion, a few perspectives and problems in connection with these main subdivisions of the CPR, should be lifted out.

4. The transcendental aesthetic

To explain the *a priori* principles of sensibility, Kant started with its *isolation*, by taking away from it everything which the understanding thinks through its concepts, so that nothing may be left save empirical intuition (B,36). Secondly, he also separated from it everything which belongs to sensation (Empfindung), 'so that nothing may remain save pure intuition (Anschauung) and the mere form of appearances, which is all that sensibility can supply *a priori*' (ibid.). *Sensibility* is nothing but the *receptivity* of our mind (Gemut), in its power of receiving representations (B,75).

At this point Kant employed the *form-matter* distinction. The effect of an object upon the faculty of *sensation*, and sensation mediates our *empirical* intuitions. The undetermined object of an empirical intuition is entitled *appearance*. That in the appearance which corresponds to sensation, is termed by Kant, as its *matter*. However, that which so determines the manifold of appearance that it could be ordered in definite relations, is called the form of appearance. The pure form of sensibility is called pure *intuition* (B,34). *Space*, then, is the necessary *a priori* representation underlying all outer intuitions, whereas time is the formal *a priori* condition of all appearances whatsoever (B,38; B,50). [136]

In explaining the principle of the analogies of experience, namely that experience is possible only through the representation of a necessary connection of perceptions (B,218), Kant distinguished three modes of time: *duration*, *succession* and *coexistence* (B,219). Time is once itself called the persistent form (beharrlicher Form) of inner intuition (B,224). According to Leibniz, time is only an order of successions, because space is an order of coexistences (*Correspondence with Clarke*, Third Paper, published in the translation of M. Morris, *op. cit.*, p.199).

In line with the prevalent empiricism, Kant still reduced *experience* to the *sensitive* dimension of reality. However, the *a posteriori* matter of all appearance is completely stripped from all determinations, it is an *unordered and formless manifold*. The provisional ordering of this structureless manifold is solely an outcome of the determining capacity of time and space as *a priori* forms of sensibility. For instance, time, as a purely subjective condition of our intuition, is in itself, apart from the subject, nothing. Nevertheless, Kant maintained that, in respect of all appearances, and therefore of all the things which can enter into our experience, it is necessarily objective (B,51). Thus the proposition that all things as appearances are in time, has legitimate 'objective correctness and universality *a priori*' (B,52). Space and time, therefore, contain *a priori* the condition for the possibility of objects as appearances, and the synthesis which takes place in them 'has objective validity' (B,122).

In order to explain that we are here confronted with one of the ultimate implications of nominalism in modern philosophy, we shall have to consider the exposition of the transcendental analytic as well.

5. The transcendental analytic

In the transcendental logic (divided into analytic and dialectic), Kant described *pure understanding* as completely *separated*, not merely from all that is empirical but also from all sensibility (B,89). As such it is an independent and self-sufficient unity, not to be increased by any additions from without (B,89-90). Nevertheless, our *knowledge* stems first of all from the receptivity of impressions, and secondly, from the ability to know an object by means of these representations (that is the spontaneity of concepts) (B,74). 'Without sensibility no object would be given to us, without understanding no object would be thought.'

⁴ Two secondary texts should be mentioned here: (a) Gideon, A. 1977 (1903) *Der Begriff Transcendental in Kants Kritik der reinen Vernunft*. Darmstadt (Marburg). (b) Duintjer, O.D. 1966. *De vraag naar het transcendentale*.

Thoughts without content are empty, intuitions without concepts are blind' (B,75). Our understanding, which may be represented as a faculty of judgment, can only use concepts in judgments (B,94).

5.1 *The problem of a synthetical unity*

The transcendental deduction of the pure *a priori* concepts of understanding resulted in the well-known table of categories (*quantity, quality, relation and modality*), corresponding to the logical functions in all possible judgments (B,106; B,95). In respect of the *a priori* side of all knowledge, at least four conditions must be satisfied. What must first be given is the manifold of pure intuition. The second factor involved is the synthesis of this manifold by means of the imagination, although this does not yet yield knowledge. The manifold of intuition can only be united in the concepts which give *unity* to this pure synthesis (B,104). In all knowledge of an object there is *unity* of the concept, which may be entitled *qualitative unity* (B,114). This qualitative unity is not the category of unity, since we must look yet higher for it, namely in that which itself contains the ground of the unity of diverse concepts in judgment (B,131). Bringing the synthesis of imagination *to concepts* is a function which belongs to the understanding (B,103). An *object* is that, in the concept of which, the manifold of a given intuition is *united*.

'Now all unification of representations demands unity of consciousness in the synthesis of them. Consequently, it is the unity of consciousness that alone constitutes the relation of representations to an object, and therefore their objective validity and the fact that they are modes of knowledge; and upon it therefore rests the very possibility of the understanding' (B,137).

This unity of consciousness [compare the equivalent expressions: 'transcendental unity of self-consciousness' (B,132); 'transcendental unity of apperception' (B,139); and 'cogito' (B,131), i.e. the 'I think'], contains no manifold (B,135). In 'the representations "I am", nothing manifold is given' (B,138). To act as unifying instance, the *cogito* cannot contain any manifold. This reasoning also explains Kant's earlier remark, referring to the understanding as 'an absolute unity' (B,92).

Since Kant emphatically stated that 'all combination . . . is an act of the understanding,' being 'an act of the self-activity of the subject' (B,130), the difficulty in this account of the possibility of knowledge is shown in the following problem: How does our understanding, under the guidance of the absolute unity of the *cogito* in its purely logical nature, create a synthetic unity from the source of an a-logical multiplicity (manifold), ordered (and not united!) by the forms of intuition? It seems as if the *imagination* is the best candidate for solving this problem for Kant. However, in so far as the imagination can give to the concepts of understanding a corresponding intuition, it belongs to the *sensibility* (B,151). Kant called the synthetic influence of the understanding in its affect on the inner sense 'the transcendental act of imagination (synthetic influence of the understanding upon inner sense)' (B,154). *This is* the crucial point, since the understanding does not 'find in the inner sense such a combination of the manifold, but *produces* it, in that it *affects* (affiziert) that sense' (B,155) – and we have mentioned that, to Kant, all *combination* is 'an act of the understanding' (B,130). Besides, next to the *isolation* of sensibility (B,36), Kant started from his notion of *pure understanding* as an independent and self-sufficient *unity* completely *separated* from all *sensibility* (B. 89-90). But, given this initial disjunction of *understanding* and *sensibility*, it stands to reason that Kant's attempts to perform a uniting synthesis in the final analysis remain *enclosed* in the (separated) *understanding*. How the *production* of such a combination of the manifold could be accomplished by *affecting* the inner sense, is not at all explained! The same shortcoming is evident in Kant's discussion of the 'schematism of the pure concepts of understanding,' since the *transcendental schema* presupposes the solution not given (cf. B,176 ff.). Kant did not realize that a reliable theory of knowledge should start by providing an account of *the possibility* of 'isolating' (i.e., *identify*) sensibility (or any other facet of reality) or [137] 'separating' (i.e. distinguish) from it (the logical function of) our understanding. This *prior* identification and distinction *implicitly* executed in Kant's analysis are not recognized as such, and therefore are not subjected to a *critical* epistemological inquiry. In this respect indeed Kant still defended a *dogmatic* position, in the sense of not having penetrated to the ultimate transcendental foundations that condition the logical function of our understanding. This shortcoming

resulted, among other things, in the internal antinomic construction of the 'I think' as an undifferentiated absolute logical unity (excluding all multiplicity): this 'pure' and 'separated' understanding would have to *resist* the non-logical manifold of sensibility as not being its own, and that on the ground of the *principium contradictionis*. This was clearly seen by both R. Kroner (1961, vol. 1: 85) and H. Dooyeweerd (1969, vol. I: 500).

Although Kant, in the 'Introduction' of the CPR, raised the possibility that sensibility and understanding perhaps spring from a common (unknown) root (A,15; B,29) he did not, in his final account, explore this avenue.

5.2 Galileo and Kant: the 'objective validity' of 'subjective conditions of thought'

Before Galileo, the belief was held that any moving body needed some dynamic force to continue its movement. Galileo, however, claimed that a body in motion, will *continue* this motion endlessly, except when some force impinges on it. In his *Dialogues and mathematical demonstrations concerning two new sciences* (1638; the German translation, 1973; Darmstadt), Galileo formulated this idea in terms of a thought-experiment: I imagine a body being placed on a horizontal plane without any impediment, from which it follows ... that the movement of this body on the plane would be uniform and ever-enduring, if the plane is extended into infinity.

The way in which Galileo formulated this principle of *inertia* strongly influenced Kant (cf. Holz, 1975: 345-358). C.F. von Weizsacker (1971: 128) framed Kant's problem in terms of the question: What is nature, that it must obey laws which man could formulate with his understanding? Kant, in fact, in his conception of the categories, even moved a step further.

Galileo formulated his thought-experiment, without taking account of any real sense-experience, to arrive at his law of inertia. This law is derived and prescribed to moving entities out of the pure understanding of the human being in its spontaneous subjectivity. This represents the crucial epistemological turn in ascribing the primacy no longer to the object, but to the *subject*. In a somewhat different context, Kant wrote about the difficulty involved in this turn, namely how '*subjective conditions of thought* can have *objective validity*, that is, can furnish conditions of the possibility of all knowledge of objects' (B,122). The way in which Kant tried to solve this problem, illustrates that, in line with the thought-experiment of Galileo, Kant drew the radical humanistic conclusion: the laws of nature are *a priori* contained in the subjective understanding of the human being: 'the categories are conditions of the possibility of experience, and are therefore valid *a priori* for all objects of experience' (B,161); 'Categories are concepts which prescribe laws *a priori* to appearances, and therefore to nature, the sum of all appearances' (B,163); 'Understanding creates its laws (*a priori*) not out of nature, but prescribes them to nature' (1783, II 36, 320).

Indeed, Kant tried to consolidate and strengthen the preceding natural science-ideal, be it in the restricted form of the rationalistically elevated understanding which is considered to be (though limited to sensibility in order to save a separate super-sensory domain for the practical-ethical freedom of autonomous man), the *a priori lawgiver of nature*!

5.3 The deeply rooted nominalistic assumption in the Kantian view of understanding as the *a priori* lawgiver of nature

From our analysis it should be clear that the so-called 'Copernican revolution' in modern philosophy, supposedly accomplished by Kant's critical reversal of the relation between the knowing subject and 'objective reality,' has predecessors in modern thinkers such as Galileo, Descartes, Hobbes, Leibniz and others – all of them scholars who tried, each in his own way, to contribute to the establishment of the modern ideal of science. The distinctions of the *Transcendental Aesthetic* and *Analytic* functioned first of all in the service of Kant's attempt to safeguard autonomous human freedom (the primacy of the ideal of personality in his thought).

At the beginning of our discussion, we briefly sketched the significance of the rise of nominalism (Ockham and others) for the emergence of modern philosophy. It will help to get a better understanding of

nominalism with the aid of an example. Thanks to the fact that there are certain universal features present in any particular human being or tree, one can always recognize *this* person or *this* tree as *a* human being or *a* tree. In other words, *being human* or *being a tree* represent the *universal side* of any particular human being or tree, which is always strictly correlated with its *individual side* (linguistically this state of affairs is expressed by the respective use of the articles *a*, *an*, and the pronoun *this*). However, to be *a* human being or *a* tree, it is necessary to *conform* to the *universal structural conditions* for *being human* or *being a tree*. The way in which any specific tree expresses its being subjected to the universal conditions determining its existence, is by being a tree. These conditions are to be seen as the *structures for* the existence of any entity, whereas the law-conformative *structuredness* of a given entity demonstrates the universal way in which such an entity reflects its being subjected to the relevant conditioning structures for. In other words, there is a strict correlation between the universal conditioning *order for*, and the universally conditioned *orderliness of* entities. Thus every entity displays both an individual and a universal side, in subjection to the relevant universal conditioning order. No entity can ever be identical with the conditions for their existence – the conditions for being a tree are not themselves a tree; the conditions (laws) for being an atom are not themselves an atom, and so on. It is indeed one of the ultimate tasks of philosophy to account for the structures for, and the structuredness of, reality. The answer to this problem originates in the supra-theoretic root of our existence, giving a specific *direction* to our basic philosophical ideas and distinctions. From a Biblical starting-point, I am committed to the assumption that everything created is subjected to the God-given law determining its existence. Of course this commitment should not be identified with the speculative [138] endeavour of realistic metaphysics to discern *universalia ante rem* in God's Mind or *universal substantial forms* in the entities. This *rationalistic* approach, elevating the universal as the only source of knowledge, leaves no room for the knowledge of things in their individuality. Surely, concept-formation is always bound up with the universal order for, and the universal orderliness of, things. This implies, as was already discovered by Aristotle, that one cannot comprehend conceptually the individual aspect of an entity. (The fact that Aristotle conceived of his primary substance as something *individual* (*Cat.* 2 a 11 ff.), forced him in order to save the possibility of (scientific) knowledge, to introduce the secondary substance as the *universal substantial form* of things (*Cat.* 3 b 1 ff.). Unfortunately he identified knowledge with *conceptual* knowledge, implying that something individual cannot be known (cf. *Metaf.* 1040 a 5 ff.).)

Contrary to this rationalistic position, we must emphasize that we do in fact have knowledge of things in their individuality, although this kind of knowledge is not *conceptual*. Rather, it is of a limiting and approaching nature, referring to the individual side of things *in terms of* universal features. But this is precisely what idea-knowledge is all about – an idea concentrates a conceptual diversity upon (resp. refers it to) that which transcends the limits of all concept-formation. Therefore, rationalism leaves no room for idea-knowledge. Irrationalism, on the other hand, always wants to pay tribute to the contingent uniqueness of the individual side of entities or events which, as we saw, transcends the limits of concept-formation. Consequently, irrationalism leaves no room for real conceptual knowledge.

Is nominalism rationalistic or irrationalistic? In respect of the typical structure of entities, nominalism does not accept any conditioning order (universal structures for), or any orderliness of (universal structuredness of), such entities. Every entity is strictly *individual*. In terms of our given definition, nominalism surely represents an irrationalistic view in connection with the nature of entities – every individual entity is completely stripped from its universal orderliness (law-conformity) and conditioning order. This characteristic applies both to moderate nominalism (viz., conceptualism) and to extreme nominalism (rejecting all general and abstract ideas and accepting only general names). Locke, together with Ockham, Leibniz and others considered to be conceptualists, asked the question of how general words come to be made.

'For, since all things that exist are only particulars, how come we by general terms, or where find we those general natures they are supposed to stand for? Words become general by being made the signs of general ideas; and ideas become general by separating from them the circumstances of time and place, and any other ideas that may determine

them to this or that particular existence. By this way of abstraction they are made capable of representing more individuals than one' (Locke, 1689-III, ii, 6).

Berkeley, on the other hand, is convinced that one 'has no other than *particular* ideas' (1710, Introduction, par.24): 'Whereas, in truth, there is no such thing as one precise and definite signification annexed to any general name, they all signifying indifferently a great number of particular ideas' (ibid., par. 18). To form the abstract idea of *man* (cf. par. 9), or the general idea of a *triangle* (§ 13: 'which is neither oblique nor rectangle, equilateral, equicrural nor scalenon, but all and none of these at once'), is therefore impossible. Since for Berkeley 'the very *existence* of an unthinking being consists in *being perceived*' (1710, 1: 88), and since whatever is perceived is individual (particular), the *ideas* [as 'images of things' (1: 33)] can be nothing but *particular*.

In spite of their disagreement about the nature of *ideas*, both Locke and Berkeley adhered to the irrationalistic view of nominalism in respect of the strictly individual nature of (perceived) entities. This perspective, however, does not exhaust the multifaceted nature of nominalism, because universals are fully acknowledged in the human mind (at least as general words in the case of Berkeley's extreme nominalism). That is why Berkeley could confess:

'It is, I know, a point much insisted on, that all knowledge and demonstration are about universal notions, to which I fully agree: but then it does not appear to me that those notions are formed by abstraction in the manner premised – *universality*, so far as I can comprehend, not consisting in the absolute, positive nature or conception of anything, but in the *relation* it bears to the particulars signified or represented by it' (*The principles*, Introduction, par. 1 5).

This restriction of knowledge to *universals* is typical of rationalism as defined by us. Therefore, it is possible to see nominalism as being simultaneously rationalistic (concerning the universals – concepts or words – in one's mind) and irrationalistic (concerning the strict individuality of entities). Of course, this irrationalistic side of nominalism is self-contradictory, at least when one rejects the influential Aristotelian dichotomy between *quantity* (as a category of matter) and *quality* (as a category of form). A chair having *four* legs, unmistakably possesses this definite numerical (quantitative!) *quality*! Therefore, the *being individual* of a plurality of (be it perceivable) things, manifests an inherent structural trait (i.e., something universal) of particular entities. (It is only in terms of the universal numerical mode of reality that one can, by means of a limiting concept (idea), approach the uniqueness of particular entities.)

To understand Kant's position, it is important to realize that nominalism (also in its conceptualist variants, including Kant's own position), in fact *transposes* the universal side of entities into the human mind (understanding). But, as we have indicated, the universal side of entities is nothing but the manifestation of the conditionedness of entities by the relevant universal order for their existence. Consequently, by stripping an entity of its orderliness (its universal side), it is simultaneously stripped from its being subjected to whatsoever universal (creational) order there is. What remains is factual reality in its *unstructured* (chaotic) *individuality* and *particularity*. It was this very feature of nominalism which enabled modern philosophy from Descartes onwards, driven by the new humanistic motive of *logical creation* (cf. the second subsection of this paper), to reconstruct all of reality in terms of natural scientific thought. Only the extreme consequences of this [139] natural science-ideal, cancelling in principle also human freedom, were questioned by Kant. But to him, in the restricted area of human understanding, limited to sensibility and appearances, the position of understanding had to acquire a firm foundation in the claim that it is the *a priori* lawgiver of nature. Nominalism created an important vacuum, by leaving factual reality in its individuality *unstructured*. Kant indeed drew the ultimate humanistic conclusion to fill the gap of determination thus created – human understanding took hold of this vacant position, since it was promoted to function as *the formal* lawgiver of *nature* (given as chaotic sensory *material*). Consequently, Kant did not merely transpose the universal side of entities into human understanding, but in fact elevated human understanding to the level of the *conditioning order for things*!

The *matter* of experience, rooted in an unknown natural 'thing in itself,' is, nevertheless, not *created* by human understanding. The latter only functions as the *a priori formal lawgiver of nature*. Therefore, the matter of experience sets a limit to the sovereignty of the (merely form-giving) understanding. Besides

this, the ambiguity in Kant's notion of a 'thing in itself' (on the one hand referring to a natural 'thing in itself' and on the other hand to the freedom of the human soul), endangered his freedom-ideal. Dooyeweerd (1969, vol 1:361) clearly realized this impasse: 'the acceptance of a metaphysical "substance of nature" did not permit the Idea of free and autonomous personality to be recognized as the deepest root of empirical (natural) reality' (cf. p.372).

One last point should be mentioned here. The pseudo-Aristotelian form-matter schema caused Kant to view the *a priori* forms of *intuition* to act as an ordering (form-giving) instance with respect to the chaotic sensory material (cf. B. 34, 74). Although *ordered*, the sensory material, within the domain of sensibility, cannot but remain in the state of an *ordered manifold*. (On this level combination never yields any unity.) However, what *is form* in relation to appearances, is itself, in relation to our understanding with its concepts, *matter*: 'Transcendental logic, on the other hand, has lying before it a manifold of *a priori* sensibility, presented by transcendental aesthetic, as *material* (my italics – D.S.) for the concepts of pure understanding' (B,102). (Compare also the analysis contained in Baschlin D.L. 1968, *Schopenhauers Einwand gegen Kants Transzendente Deduktion der Kategorien*, Meisenheim am Glan, p.32 ff.)

5.4 The nature of material bodies: Descartes and Kant

Descartes was convinced that 'the nature of body consists not in weight, hardness, colour, and the like, but in extension alone' (*Principles*, Part 11, IV).⁵

In spite of the obvious differences, there are also striking similarities between this view of Descartes and the exposition given by Kant in the *Transcendental Aesthetic*:

'If, then, I take away from the representation of a body that which the understanding thinks with regard to it, substance, force, divisibility, etc., and likewise what belongs to sensation, impenetrability, hardness, colour etc., something still remains over from this empirical intuition, namely, extension and figure' (B,35, cf. B,5-6).

Kant agreed with Descartes in so far as they both were convinced that in taking away every possible quality of a body, nothing but extension is left. (Of course, Descartes did not conceive space as an *a priori* form of intuition, belonging to sensibility as a separate stem of knowledge.) Descartes furthermore believed that a material body, from its nature, is in principle always divisible (cf. Med. VI; *Principles*, Part 11, XX). Atoms, as the last *indivisible* units of matter (defended by Descartes's contemporary Gassendi), were rejected by Descartes, since it is incompatible with the mathematical function-concept (of the science-ideal) with its implied infinite divisibility. (Cf. the lucid discussion of the position of Leibniz and Newton on this score by Neemann U. 1980. *Philosophische Probleme von Raum und Zeit. Phil. Natur. vol. 18, part 1: p.152 ff.*) Kant firmly defended the position that 'the whole is not in itself already divided,' although this conviction does not at all exclude the *infinite divisibility* of matter for him (B,554). Once again the difference is given in the fact that our understanding *a priori* provides the concept of divisibility.

Perhaps the most important consequence of Descartes's influence is given in the Kantian distinction between analytic and synthetic judgments. The first examples of these two types of judgments given by Kant makes this evident. 'If I say, for instance, "All bodies are extended", this is an analytic judgment' (B,11). But when I say 'All bodies are heavy,' we encounter, according to Kant, 'a synthetic judgment' (B,11, cf. B,142). After having reduced the notion of a material body (with Descartes) to pure spatiality, it is a self-evident consequence that the *concept* of such a body can essentially only include the feature of

⁵ The Pythagoreans started with the arithmeticistic assumption that everything is number. The underlying ground-motive of the limitless and the limited (matter and form), after the discovery of irrational numbers, forced Greek mathematics in the direction of a geometrization (the unlimited number series representing an irrational number, could be handled in the *limited form* of a spatial figure). This meant a shift away from the aspect of number and towards the aspect of space as a new point of entry to reality. Especially Parmenides and his followers exploited this possibility in their philosophy of *being* – constantly characterized in *spatial* terms (cf. B Fr.8, 3-6 quoted earlier in the text). Still under the long-standing influence of this tradition, Descartes also found the essence of a *body* in its spatial *extension*.

extension, to the exclusion of any other characteristic, such as the physical feature 'weight,' or even the kinematical quality of persistence (Beharrlichkeit): 'For in the concept of matter I do not think its persistence, but only its presence in the space which it occupies' (B,18). We will return to the untenability of this distinction later on.

We cannot conclude this section without referring to the problems with regard to motion in this concept of a material body. Descartes identified motion with a 'change of situation' (Med. III). His general description is: 'But motion . . . , in the ordinary sense of the term, is nothing more than the *action by which a body passes from one place to another*' (Principles, Part II, XXIV). If the essential feature of a body is its *extension* (i.e., the place it occupies), then *motion*, defined as a 'change of place,' is a self-contradictory notion: any change of place must imply a change of *essence*, but then the persistent subject of motion is abolished! Zeno, a pupil of Parmenides, formulated this antinomy with an astonishing lucidity in the last of his four fragments that is still accessible to us: 'Whatever moves, neither moves itself in the space which it occupies, nor in the space which it does not occupy' (B Fr.4).

Kant also identified movement (Bewegung) with a change of place (Veränderung der Örter) (B,67). However, he was fully aware of the implied contradiction in this circumscription. He stated that this concept (i.e. motion) as such represents 'a combination of contradictorily opposed predicates in one and the same object, for instance, the being and not-being of one and the same thing in one and the same place' (B,48). This is indeed the implication of his concept of space. To escape from this contradiction, Kant [140] made an appeal to his conception of *time*: 'Only in time can two contradictorily opposed predicates meet in one and the same object, namely, *successively* (nacheinander)' (B,484-93. What Kant actually needed here, was one of the other modes of time distinguished by him, namely *duration* (the third one is *coexistence*, B,219). These three modes of time pertain to the time-order present in the aspects of number (succession), space (coexistence = simultaneity) and movement (duration = the uniform flow of time), or: the kinematical order of uniformity, as it is called by the physicist M.D. Stafleu (1980, *Time and again: A systematic analysis of the foundations of physics*, Bloemfontein/Toronto, p.85).⁶ The meaning of the term *motion* refers to the irreducible and indefinable kinematical mode of reality – every attempt to define it in physical or spatial terms, such as the 'definition' of motion as 'change of place' (*change is a physical term*, and *place a spatial one*), must get stuck in antinomies (i.e. the reduction of something irreducible). One simply cannot derive irreducible notions from different but already known ones.

5.5 A brief and provisional positive evaluation of the Transcendental Aesthetic and Analytic

Most of what Kant classified as *a priori* is concerned with the fundamental and universal modes (aspects) underlying our actual experience of things, events and relationships. If we free ourselves from his nominalistic and rationalistic assumptions (locating the universal *a priori* order for reality in the concepts

⁶ Systematic Remark: Galileo grasped the fact that *uniform motion* was a primitive notion and therefore not in need of a *physical cause* (recall the thought-experiment of Galileo mentioned above). The physical meaning of a cause always implies certain effects, i.e. dynamic changes. What needs a cause is not *motion*, but a *change* of motion (cf. Stafleu, 1980: 80). This implies that the phoronomic (kinematic) facet of reality is indeed a condition for energy-operation (with its implied causes and effects). *Physical changes* presuppose some form of *continuation* (persistence), for only on the basis of something that *persists* is it meaningful to point towards *changes*. Recently P. Janich correctly emphasized a 'strict distinction between phoronomic (subsequently called kinematic) and dynamic statements.' (Janich, P. 1975. Tragheitsgesetz und Inertialsystem, in Chr. Thiel, *Frege und die moderne Grundlagenforschung*, Meisenheim am Glan, p.68.) For instance, if a body changes its velocity *discontinuously* (i.e. when it experiences an infinite acceleration), it would have needed an *infinite force*, which is, physically seen, impossible (op. cit., p.69). Although formulated in terms of his peculiar position, Kant saw this state of affairs in his own way. The first Analogy of Experience concerns the 'Principle of the permanence of substance' (B,224), and in the discussion of the Second Analogy we read that the 'concept of change (Veränderung), presupposes one and the same subject as existing with two opposite determinations, and therefore as *abiding*' (B,233, my italics – D.S.) To mention two last explicit statements: 'All that changes *persists*, and only its state *alters*' (B,230); 'All alteration is thus only possible through a continuous action of the causality which, so far as it is uniform, is entitled a moment.... That is the law of the continuity of all change' (B,254).

of understanding, the latter being the formal lawgiver of nature), and replace the ultimate dialectical basic motive of nature and freedom at the (supra-theoretical) root of his thought by a biblical starting-point, we are entitled to appraise the dimension of modalities (aspects) as given in an *a priori* ontic sense, making our experience of anything functioning within them as such *possible*. Furthermore, if we redefine *synthesis* to mean the logical *identification* of (among other things) any particular universal modality of created reality (together with *distinguishing*, being one of the two legs of *analysis*), then we encounter *synthetic concepts* relating themselves to the *a priori universal modes of reality*. This *a priori* modal dimension of reality encompasses every facet of our *experience*, implying that the latter may not any longer be reduced to the *sensitive aspect* of creation. The aspect of number enables us to *experience* numerical relations, the aspect of space underlies the *experience* of spatial relations, the kinematical aspect the phenomena of movement and constancy, the physical aspect the effects of energy-operation, and so on.⁷ Of course these modes also include the normatively structured aspects of reality (the logical, the historical, the sign-mode, the social, the economic, the aesthetic, the legal, the ethical and the certitudinal), which, for Kant, are for the greater part outside the scope of our understanding.

Differently structured *entities* all function within these universal modal aspects (either as subjects or as objects). Therefore, whereas modal laws are given for all kinds of subjects, typical entitary laws are only given for a limited class of subjects (cf. the way in which Stafleu implemented this perspective in his analysis of the foundations of physics, op. cit., p.6, 12, and the difference between the various chapters of his work). Typical laws always *specify* (never individualize) the universal modal laws (thermodynamics, as a purely modal physical theory, abstracts from the typical differences between the solid state, the fluid state, and the gaseous state). Discussing the nature of an *a priori* synthetic element in the 'empirical sciences,' W. Stegmüller raised the following possibility (1969: 316): 'Surely, this cannot imply that the totality of law-statements present in a natural science could be of an *a priori* nature. Much rather, such an apriorism should limit itself to the construction of a limited number of *a priori* valid law relationships, while, furthermore, all more specific laws of nature should be dependent on empirical testing.' Keeping in mind that we must distinguish laws in an ontical sense from our hypothetical law statements in scientific formulations, it is still remarkable to note the similarity between the just-mentioned statement of Stegmüller and the following explanation of Stafleu (related to the distinction between modal laws and typical laws):

'Whereas typical laws can usually be found by induction and generalization of empirical facts or lower level law statements, modal laws are found by abstraction. Euclidean geometry, Galileo's discovery of the laws of motion . . . , and thermodynamic laws are all examples of laws found by abstraction. This state of affairs is reflected in the use of the term "rational mechanics", in distinction from experimental physics' (op. cit., p.11).

6. The transcendental dialectic

6.1 Exposition of Kant's argument

In our discussion of the ultimate basic problem of the CPR we placed the transcendental dialectic in the centre of our exposition. This follows from the fact that Kant's CPR wanted to safeguard the moral freedom of man. It was Rousseau who helped Kant to rediscover the directing power of this underlying freedom motive. Kant once expressed his debt to Rousseau: 'I am a born scholar, but in a way I was converted by Rousseau, otherwise I would sit in my study and study all the time: but when I read Rousseau, I discovered man and I learned to honor man' (quoted by van der Hoeven, J. 1976, *Karl Marx: The roots of his thought*, Assen, p.2). In opposition to the prevalent approach of the Enlightenment philosophers, who still upheld that *rationality is* the distinctive hallmark of being human, Rousseau

⁷ A general introduction to this philosophical approach is provided in my recent work: Strauss, D.F.M. 1980. *Inleiding tot die kosmologie*. Bloemfontein.

believed that the consciousness of *liberty* displays the unique spirituality of man: 'Nature commands every animal, and the brute obeys. Man experiences the same impulsion, but recognizes his liberty to acquiesce or resist; and it is particularly in his consciousness of this liberty that the spirituality of his soul is displayed' (*Discours sur l'origine de l'inégalité parmi les hommes* (1755), republished in: Rousseau, 1975:47).

To leave the domain of freedom intact, Kant developed principles of pure understanding which did not allow an employment extending beyond the limits of ex[141]perience (B,352-353). However, if our understanding extends itself beyond the limits set to it, a *transcendental illusion* emerges (B,352), and this natural and inevitable illusion is examined in the *Transcendental Dialectic*. In this context the term *transcendental* receives a new meaning, referring to that which transcends the limits of experience: 'The principles of pure understanding, which we have set out above, allow only of empirical and not of transcendental employment, that is, employment extending beyond the limits of experience' (B,352-353). To Kant, *pure reason* is the seat of this transcendental illusion (B,355 ff.).

Earlier Kant introduced the concept of a *noumenon*, a concept necessary to prevent 'sensible intuition (sinnliche Anschauung) from being extended to things in themselves, and thus to limit the objective validity of sensible knowledge' (B,310). After all, the categories have no other possible employment than the empirical (B,185) (cf. B,308: 'it follows that the employment of the categories can never extend further than the objects of experience'). This implies that the doctrine of sensibility is simply 'the doctrine of the noumenon in the negative sense' (B,307). Due to the mere empirical use of the categories (concepts) of understanding, the question arises how we may think of the relationship between our understanding and this super-sensory noumenal sphere. A provisional answer to this question is given in Kant's explanation that the concept of a noumenon is nothing but a *limiting concept* (Grenzbegriff), intended to restrict the application of sensibility:

'The concept of a noumenon is thus merely a *limiting concept*, the function of which is to curb the pretensions of sensibility; and it is therefore only of negative employment. At the same time it is no arbitrary invention; it is bound up with the limitation of sensibility, though it cannot affirm anything positive beyond the field of sensibility' (B,310-311).

Since the representation of that which Kant entitled *noumenon* is not sensible, it remains empty for us in the sense of leaving open a space which we can fill neither through possible experience nor through pure understanding (B,346).

Here we must recall Kant's remark (from the *Preface* to the second edition) which we have quoted at the beginning of our discussion of the internal structure of the CPR: whatever transcends the realm of sensibility cannot be *known*, although it is possible to *think* it as a thing in itself (B,xxvii). Without extending its own sphere, understanding itself limits sensibility. In this process of warning sensibility that it must not presume to claim applicability to things-in-themselves but only to appearances, understanding does indeed *think* for itself a *transcendental object in itself*, which is the cause of appearance and therefore not itself appearance, and which can be thought neither as quantity nor as reality nor as substance, because these concepts always require sensible forms in which they determine an object (B,344).

Understanding is the capacity, by means of rules, to unite appearances. The task of *reason* is to unite the rules of understanding under the guidance of principles.

'Accordingly, reason never applies itself directly to experience or any object, but to understanding, in order to give the manifold knowledge of the latter an *a priori* unity by means of concepts, a unity which may be called the unity of reason, and which is quite different in kind from any unity that can be accomplished by the understanding' (B,359).

Thus the acquisition of knowledge proceeds in three steps: it starts

'with the senses, proceeds from thence to understanding, and ends with reason, beyond which there is no higher faculty to be found in us for elaborating the matter of intuition and bringing it under the highest unity of thought' (B,355, cf. B,730).

Syllogistic inference implies that the conclusion is always subsumed under the condition of a universal rule (the major premise). By applying this rule of reason once more, the condition of the condition must therefore be sought (by means of a prosyllogism) whenever practicable. Thus, according to Kant, the principle peculiar to reason in general, in its logical employment, is: 'to find for the conditioned knowledge obtained through the understanding the unconditioned whereby its unity is brought to completion' (B,364). The concepts of pure reason are called *transcendental ideas* (B,368). These ideas instruct us only in regard to a certain unattainable completeness, and so serve rather to limit the understanding than to extend it to new objects (B,620). The *unconditioned* is never to be met in experience, but only in the idea – whenever '*the conditioned is given, the entire sum of conditions, and consequently the absolutely unconditioned* (through which alone the conditioned has been possible) is also given' (B,436). This means that the transcendental ideas are simply 'categories extended to the unconditioned' (B,436) (this applies only to those categories in which the synthesis constitutes a *series of conditions* subordinated to one another). To Kant, therefore, the transcendental ideas serve only for *ascending*, in the series of conditions, to the unconditioned (that is, to principles; cf. B,394). *No constitutive* use of these ideas are allowed, because then we only arrive at pseudorational dialectical concepts (the source of which Kant called the antinomies) (cf. B,672). The three ideas of the *soul* (thinking nature), the *world* and *God* are all to be used in an 'as if' way, i.e., *regulatively* (cf. B.710-714). The 'thing-in-itself' is not *merely* an *idea*. On the contrary, due to the fact that we cannot *know* the 'thing-in-itself,' but nevertheless *think* it, a mode of conceptualization should exist in which we can *think* (be it as something *unknowable*) the 'thing-in-itself.' This is Kant's *transcendental idea* (cf. Hartmann, 1957: 311)

6.2 The fundamental shortcoming of Kant's argument

Kant's distinction between concept and (transcendental) idea is crucial to an understanding of his main intention with the transcendental dialectic (and therefore of his whole CPR). In the preceding analysis we, in passing (cf. section 5.3), alluded to the systematic way in which we want to distinguish between *conceptual knowledge* and *idea knowledge*. The former is always tied up with the universal side of entities, or with the universal conditioning order for entities, whereas the latter is attained when a conceptual diversity is concentrated upon (resp. referred to) that which transcends the limits of all concept-formation. In following Kant, we may characterize the legitimate use of ideas as *regulative*. (Especially in his dialogue *Parmenides*, Plato already demonstrated another feature of an idea, namely its function as a *limiting concept* – something also emphasized by Kant.⁸)

In a certain sense the modal dimension of reality (i.e., the aspects of number, space, movement, the physical, the biotical, and so on) conditions both the employment of [142] concepts and ideas. This follows from the fact that the different modalities always serve as *points of entry* to our experience of and reflection on created reality. Modal concepts are always formed in relation to universal features of the different modal aspects (for example the concept *natural number, set, dimension, cause and effect* (causality), and so on). Ultimately, the nuclear meaning of every distinguishable modality is *indefinable*, providing as such the *primitive terms* used in our concept-formation and definitions. (In the final analysis, therefore, one can comprehend only in terms which are themselves beyond the grip of concept-formation – evincing the self-insufficiency of rational thought!)

The meaning of the different modal aspects not only provides a starting-point for concept-formation, since it also furnishes us with the possibility of using modal terms in an idea-context. We have mentioned the fact that any particular entity in its individual concreteness transcends the limits of concept-formation. However, in terms of different modal aspects, serving as points of entry to gain knowledge of such an individual entity, we are able to formulate different *ideas* of the thing concerned in its concreteness. Suppose we are thinking about a particular *chair*. If we look at the way in which this chair functions within the universal mode of the numerical aspect of reality, we may refer to its having four legs. Our

⁸ Cf. ch. I & V in Strauss, D.F.M. 1973. *Begrip en Idee*. Assen.

concept of all chairs in this category must include the numerical feature of having a certain *number* of legs. Besides this *conceptual* use of *numerical terms*, we may reverse our approach and try to say something with reference to the concrete individuality of this chair, still by using numerical terms. In this case we may say that this chair is *unique*. This *idea* of its uniqueness is nothing but a limiting and referring way in which the point of entry of the numerical aspect is used. An idea-use of the spatial aspect (with its inherent meaning of continuity, i.e., connectedness, implying the original spatial *whole-parts* relation), entitles us to form the *idea* of the *typical totality* (wholeness) of this chair, which, as such, transcends all its modal functions, thus referring to its belonging to the cosmic dimension of entities. The modal meaning of continuation (persistence, constancy), revealing the irreducible nature of the kinematical aspect, serves as point of entry to our *idea* of the *identity* of this chair. (The latter two ideas should be distinguished from the general concept *chair* including both a spatial feature (the dimensions a chair can have), and a kinematical characteristic (its relative movement).) The idea of the identity of this chair is closely linked with the idea that it is simultaneously in an everchanging state (*change*, as we have seen, is an original meaning-moment within the physical aspect). (Once again, this idea of change should be distinguished from the typical universally comprehensible function it has in the physical modality, for instance its being weak or strong, or its having a certain mass.)

These idea-usages of the mentioned aspects may even be extended to approach reality in its totality, for instance when we say that everything is unique, everything coheres with everything else, everything remains identical to itself, and everything changes. Note that, with equal justification one can point at the fact that everything persists (using the kinematical entrance) *and* state that everything changes (using the physical point of entry). Idea-statements like these do not *exclude* each other, but imply and presuppose each other!

Kant's dualistic separation of sensibility and understanding, founded in the dialectical opposition of nature and freedom as the ground-motive of his thought (implying the regulative use of reason-ideas pointing at the super-sensory domain of human freedom), forced him to restrict terms from the first three modalities of reality (such as succession, coexistence and duration – his three modes of time) to the sphere of *sensibility*. Being a category of understanding, causality, for instance (a term that stems from the physical aspect), is, in its applicability, also limited to sensibility. The implication should be clear: any use of these terms in an idea-context must be avoided, since then, according to Kant, our sensibility and understanding will be extended beyond the realm of appearances, inevitably ending in the abolition of human freedom. These limitations, however, are nothing but an outcome of the *artificial* disjunction of reality into two separate domains, viz. that of 'Sein' and 'Sollen' ('being' and 'ought to be'; nature and freedom; cf. B.868).

As points of entry to our reflection on reality, the modal dimension indeed *conditions* our theorizing so fundamentally, that not even Kant succeeded in escaping from its claims. In terms of his own distinctions, Kant upheld the conviction that *reason* (Vernunft), having as its sole object the understanding and its effective application, i.e., unifying the manifold of concepts by means of ideas (B,671-672), could never be given *in time*, since the latter is merely an *a priori* form of intuition, functioning as the condition of all *appearances* whatsoever (cf. B,50). Thus none of the three *modes of time* distinguished by Kant (duration, succession and coexistence – B,219), could be applicable to *reason*. Nevertheless, Kant cannot but sometimes refer to *reason* precisely in terms having their seat in the kinematical aspect (the aspect underlying our consciousness of duration and identity (= something being always the same, being always present)): 'Reason is present in all the actions of men at all times and under all circumstances, and is always the same' (B,584). Kant clearly realized that he here used (be it implicitly) one *mode of time*, namely *duration*, because he immediately added the qualification: 'but it (i.e., reason – D.S.) is not itself in time' (B,584)!

A similar problem is present in his idea of a thing in itself. This thing in itself, which, though unknowable, is only *thinkable* in the *idea* (for instance of *freedom*, cf. B,561, 571, 586). Therefore, it can never be subjected to any category of thought, such as *causality* (cause and effect). But contrary to this limitation,

Kant constantly used the term *cause* in connection with that which gives rise to appearance – the thing in itself *affects* our sensibility by means of its *appearance* (cf. B,61, 69).

Within the realm of sensibility and understanding, Kant constantly rejected the number-idea of completed infinitude (the actual infinite) (cf. B,40; B,111; B,460; B,541; B,554; and B,821). Here he appeals to our most basic awareness of infinity, as it is determined by the numerical time-order of succession which guarantees the *possibility* of extending any given number-series without an end, *endlessly* in the literal sense of the word (not-finite, in-complete, in-finite). Although used earlier, the first effective mathematical application of the idea of actual infinite sets was developed by G. Cantor during the last 25 years [143] of the previous century. He viewed the actual infinite as something 'fixed and determined in all its parts' (1962: 401). In this use of the infinite as a fixed totality the numerical time-order of succession anticipates the spatial time-order of simultaneity (which makes it possible to view an endless series of numbers as if it is simultaneously present as an infinite totality – this number-idea of actual infinity indeed functions as a regulative hypothesis in the deepening of the original meaning of the aspect of number).⁹

The first two antinomies discussed by Kant are concerned with the problem of the totality of a regressive synthesis (cf. Vogel, 1975, p.322, and Körner, 1977: 113-118). The regulative principle of reason, functioning only as a *rule*, prescribes a regress in the series of the conditions of given appearances, and forbids it to bring the regress to a close by treating anything at which it may arrive as absolutely unconditioned (B,536-537). We have mentioned Kant's view that the *unconditioned* is only met with *in the idea* (the unconditioned being the entire sum (*ganze Summe*) of conditions) (B,436). What actually should have been treated in connection with the relationship between number and space (or at least with regard to Kant's modes of time, viz. succession and coexistence), namely the idea of completed infinitude, is thus reserved for the transcendental ideas of *reason*.

In note 6 we saw that what Kant termed the law of the continuity of all change (B,254), actually pertains to the foundational coherence between the kinematical and the physical aspects. Only on the basis of something *persistent* is it possible to detect any *changes*. In this subsection we pointed out that it is precisely the kinematic point of entry which provides us with the *idea* of the *identity* of an entity. Cratylus, a pupil of Heraclitus, confronted Plato with the problem of constancy and change, as can clearly be seen from his dialogue by that name. To explain the nature of knowledge, Plato looked for something more fundamental than *change*. He found it in what he termed to be the essential form (*auto to eidos*) of what is known. At the end of the dialogue *Cratylus* even the good and the beautiful were related to their essential forms (439 c 9). If the *auto to eidos* of that which is known changed into another *eidos* (form), it would have indicated the impossibility of knowledge (440 a b). Although this view is influenced by the static (spatial) conception of being as it was conceived by Parmenides and his followers, the final 'eidetic' solution of Plato was first of all directed against the doctrine of *change* as it was defended by Heraclitus. Plato realized, albeit in a metaphysical speculative way, that *changes* always presuppose something *constant*. However, with this reasoning of Plato's, Western philosophy received the starting-point of its long-lasting speculative *substance* concept. To Aristotle primary substances were the entities which *underlie* everything else that is either predicated of them or present in them (*Cat* 2 b 15 If.). This permanent substrate (*hupokeimenon*) of all accidents was considered to be the independent, super-sensory root of everything. Even Descartes echoed this speculative substantialization of our experience of identity provided by the modal entrance of the kinematical aspect: 'By substance we can conceive nothing else than a thing which exists in such a way as to stand in need of nothing beyond itself in order to its existence' (1710, I, LI). In Berkeley's *Three dialogues between Hylas and Philonous*, we are, in the third dialogue, informed that all we know is 'a certain idea of appearance' in our 'own mind.' To the question: 'But what is this to the real tree or stone?,' Berkeley gave the answer: 'I tell you, that colour, figure, and hardness, which you perceive, are not the real natures of those things, or in the least like them. The same may be said of all other real things or corporeal substances which compose the world. They

⁹ Cf. my brief analysis of *infinity* in: Van Straaten, Zak. 1981. *Basic concepts in philosophy*, 3rd edition. Cape Town.

have none of them, any thing in themselves, like those sensible qualities by us. We should not therefore pretend to affirm or know any thing of them, as they are in their own nature' (published in the work: *The principles of human knowledge, with other writings*, edited by G.J. Warnock, Oxford, 1969, p.216-217). Formally seen, the distinction between things in themselves and their sensory appearances, is therefore also present in the writings of Berkeley. As such, this distinction simply manifests the mentioned traditional speculative concept of substance. Only an appeal to the ultimate basic motive of nature and freedom underlying Kant's whole CPR can *explain* the way in which Kant used this distinction differently from his predecessors. This perspective also explains the ambiguity in his fundamental distinction between *appearance* and *thing in itself* on the one hand (used to save human freedom, as a thing in itself, from causal determination), and his principle of the permanence of substance (B,224 95.) on the other hand. The concept of inherence and subsistence (*substantia et accidens*) is classified as one of the categories of Relation (B,106), thus being an *a priori* element of our understanding which is *not* applicable to things in themselves! And both these usages are in fact related to our idea of the identity of entities, pertaining to the coherence between the kinematical and physical aspects as two peculiar points of entry which condition not only our experience of reality, but also the concepts and ideas we form about it.

7. A brief review of the influence of the CPR

The influence of this work in the subsequent history of Western philosophy is so evident, that it hardly needs any detailed substantiation. Post-Kantian freedom-idealism (Schelling, Fichte and Hegel) fully explored the new domain of the humanistic ideal of free and autonomous personality, opened anew by Kant's CPR. Anticipated by Rousseau's idea of the 'volonte générale' (the 'general will'), this freedom-idealism introduced the organological (universalistic) idea of human society in modern philosophy.

In spite of new trends which entered the scene during the 19th century, such as positivism, Marxism and evolutionism, the legacy of Kant remained alive, as could be seen from the emergence of the two prominent neo-Kantian schools by the end of this century, namely the Marburgschool (founded by H. Cohen), and the Baden school (founded by W. Windelband). The former tried to solve the problem of a synthetical unity in the CPR (discussed above), by once again reducing sensibility to understanding (cf. Cohen, 1914:37). P. Natorp asked the question how an a-logical sensible multiplicity could be combined in the unity of a concept. In Kant's doctrine, these two moments are not at all homogeneous. To Natorp, the consciousness of unity and multiplicity originated in one and the same act of thought (1969:48) Of course this 'correc[144]tion' simply implied a return to the science-ideal, thus eliminating the whole aim of the CPR! The Baden school, on the other hand, accepted Kant's dialectical opposition of 'Sein' and 'Sollen,' and amended the latter sphere with their value-idea. Culture, according to Windelband and Rickert, is the junction of pure nature-reality related to supra-temporal universally valid *values*. Against this background they introduced their distinction between *generalizing* (nomothetic) natural sciences and *individualizing* (idiographic) spiritual sciences. (Cf. Rickert, H. 1913 (1902). *Die Grenzen der naturwissenschaftlichen Begriffsbildung* Tübingen, p.224, and Windelband 1894, in Windelband 1924. Cf. p.143 where he introduced the terms *nomothetic* and *idiographic*.)

Mainly through the influence of the works of M. Weber, this neo-Kantian school succeeded in directing some of the most prominent schools of thought in modern sociology and, to a lesser extent, in modern economic theory. The dualism of *being* and *ought to be* (Sein/Sollen) continued in the sociological theories of Sorokin, Znaniecki, Parsons, and others in the form of *society* and *culture*. Society was seen as a purely factual (a-normative) system of interacting individuals, whereas culture was taken to be the embodiment of norms, values, beliefs, and so on. (However, the domain of culture does not any longer contain, as the Baden school originally believed, *universally valid values* the axio-normative realm is completely relativized and pertain only to subjectively changing, though institutionalized and internalized, norm-orientations.)

The Kantian and neo-Kantian dualism between 'Sein' and 'Sollen' (cf. the penetrating work of G. Ellschieid on this theme: 1968, *Das Problem von Sein und Sollen in der Philosophie Immanuel Kants*, München) is responsible for the well-known dialectical opposition of *science and faith*. (Just recall Kant's statement: 'I have therefore found it necessary to deny knowledge, in order to make room for faith'; 'Ich musste also das *Wissen* aufheben, um zum *Glauben* Platz zu bekommen,' B,xxx.) Sometimes the domain of science is considered to be *objective* and *neutral* with respect to faith-commitment (the latter being particular, whereas the former represents the universally valid – The first two antinomies discussed by Kant are concerned with the problem of the totality of a regressive synthesis (cf. Vogel, 1975, p.322, and Körner, 1977: 113-118). The regulative principle of reason, functioning only as a *rule*, prescribes a regress in the series of the conditions of given appearances, and forbids it to bring the regress to a close by treating anything at which it may arrive as absolutely unconditioned (B,536-537). We have mentioned Kant's view that the *unconditioned* is only met with *in the idea* (the unconditioned being the entire sum (ganze Summe) of conditions) (B,436). What actually should have been treated in connection with the relationship between number and space (or at least with regard to Kant's modes of time, viz. succession and coexistence), namely the idea of completed infinitude, is thus reserved for the transcendental ideas of *reason*. – cf. the way in which this thesis is defended in South Africa by Oberholzer, Dreyer and their followers, mostly advocated in the name of existential phenomenology although they still adhere to important rationalist traits in the thought of E. Husserl). Quite the contrary materialized in the philosophy of Kant, since, as we have seen, this very limitation of our knowledge (to what the understanding can think in its restriction to sensibility), is thoroughly guided by Kant's faith in the moral autonomy of man, a faith ultimately rooted in the dialectical basic motive of nature and freedom which centrally directed his whole philosophical endeavour.

G. Simmel, who influenced sociologists such as Park, Burgess, Von Wiese, and Becker, developed in his important work *Soziologie* (1908) a pseudo-Kantian account of what he termed sociation (Vergesellschaftung) (cf. the 5th impression, Berlin, 1968, p.21-30). He accepted Kant's view of nature (with understanding as the formal lawgiver of nature), but partly differed from Kant when he accounted for sociation by focussing his attention not on (universally valid) knowledge *of* society, but on the way in which society is synthesized into a unity by individuals in their acts of sociation. Thus Simmel actually gave an ontological explanation of the necessary conditions for society as such (cf. the remark of Gaugler in 1958: 4142).

Kant's tremendous influence in modern legal theory is evident from the works of authors like G. Radbruch, H. Kelsen, R. Stammler, A. Merkl, and others.

7.1 Kant and modern mathematics

The three main subdivisions of the CPR provided a starting-point for the three prominent schools of thought in 20th century mathematics. The *logicism* of Gödel, following B. Russell, uses the impact of the transcendental analytic. According to Körner Russell even believes that objective experience 'presupposes nonanalytic and non *aposteriori* principles, in other words that "we are in possession of" synthetic *a priori* principles' (1979: 102).

The neo-intuitionism of Brouwer and his followers (such as Weyl, Heyting, the constructive mathematics of P. Lorenzen, Van Dalen, Troelstra, and others) chose to employ the basic tenet of Kant's transcendental aesthetic, thus accepting the infinite only in its (above-mentioned) undisclosed sense of *endlessness*. Brouwer used to speak about the intuition of bare two-oneness:

'This intuition of two-oneness, the basal intuition of mathematics, creates not only the numbers one and two, but also all finite ordinal numbers, inasmuch as one of the elements of the two-oneness may be thought of as a new two-oneness, which process may be repeated indefinitely' (Brouwer, L.E.J. Intuitionism and Formalism, reprinted in P. Benacerraf and H. Putnam, *Philosophy of mathematics: Selected readings*, Oxford, 1964, p.69).

This intuition of bare two-oneness is intimately linked with the infinite divisibility of a spatial continuum, thus uniting in a certain sense the 'connected and the separate, the continuous and the discrete,' since this

intuition of the continuum is not exhaustible 'by the interposition of new units and ... therefore can never be thought of as a mere collection of units' (Ibid.). Although the discovery of non-euclidean geometry implied a serious blow for the Kantian doctrine of space, his conception of synthetic *a priori* concepts in arithmetic continued to influence intuitionism (and, as we shall see, even formalism). Weyl claimed that the principle of mathematical induction prevents mathematics from becoming purely tautological and in fact defended the position that mathematics deals with synthetic *a priori* propositions (cf. Weyl 1966, 86-87).

Hilbert, the father of modern (axiomatic) formalism, received the main impulse from Kant's transcendental dialectic, although he accepted an important part of the rest of the CPR. In the second proposition of his doctoral thesis we read: 'That the objections to Kant's theory of the *a priori* nature of arithmetical judgments are unfounded'(quoted by Reid, C. 1970, *Hilbert*, New York, p.17). And in his paper on the infinite (in honor of Carl Weierstrass) he wrote: 'Kant taught – and it is an integral part of his doctrine – that mathematics treats a subject matter which is given independent of logic. Mathematics, therefore, can never be grounded solely on logic. Consequently, Frege's and Dedekind's attempts to so ground it were doomed to failure' (1925: 170-171; also contained in Benacerraf and Putnam, *op.cit.*, p.136-151). Finally, [145] in accordance with Kant's notion of transcendental ideas, Hilbert employed infinity in the sense of completed infinitude: 'The role that remains for the infinite to play is solely that of an idea – if one means by an idea, in Kant's terminology, a concept of reason which transcends all experience and which completes the concrete as a totality – that of an idea which we may unhesitatingly trust within the framework erected by our theory' (*Math. Annalen*, *op. cit.*, p.190).

7.2 Kant and Wittgenstein

Wittgenstein's problem of demarcation in his *Tractatus* displays remarkable similarities with Kant's CPR. (In the tradition of analytic philosophy not very much research has been done in this respect. We may mention: Stenius, E. 1960 *Wittgenstein's Tractatus*, Oxford; Harnack, J. 1969, Kant and Wittgenstein. *Kantstudien*, vol. 60: 131-134; and Morris, S. 1969 Wittgenstein and Kant. *Phil. Phenomenol. Research.*, Vol.30:483-513). Hence Max Black, and not without sufficient reason, mentioned Wittgenstein's 'metaphysical goal' in the *Tractatus* and even talked of his 'negative metaphysics' (*A Companion to Wittgenstein's Tractatus*, Cambridge, 1964, p.27, 386). His rejection of the criticism of Popper, Ramsay and others, as to the nonsensicalness of the *Tractatus*, does not solve the problem because his mathematical example (about x) merely implies that the mathematician, *in* (senseless pseudo) propositions (falling within the domain of the thinkable and sayable), explores the validity or invalidity of new symbols. The most interesting propositions for which Black wanted to give an account, however, nevertheless (i.e. in terms of Wittgenstein's *own* criteria of meaning), fall outside the thinkable and sayable (i.e. they are proper to the sphere of unthinkable and unsayable 'Unsinn'). If, however, the unthinkable and unsayable are rejected *in* nonsensical 'propositions,' the thinkable is delimited from *outside* the thinkable – in radical opposition to Wittgenstein's aim to delimit the thinkable and unthinkable from *inside* the thinkable (cf. 4.114)!

The unthinkable shows (*zeigen*) itself nevertheless within the sayable. The problem remains, at any rate, that within the sayable it is not possible to *say* that the unsayable exists, or even to say that it merely shows itself there. This distinction between what can be expressed and what can only be shown, (according to Wittgenstein 'the cardinal problem of philosophy' – cf. his letter to Russell, quoted by J. Griffen (1965: 18), is merely the negative correlate of the Kantian distinction between concept and idea. The inexpressible urge towards the mystical originates in the unsayable and comes from the non-satisfaction of our wishes by science (cf. his *Notebooks*, 1914/1916, 51, 3: 'Der Trieb zum mystischen kommt von der Unbefriedigtheit unserer Wunsche durch die Wissenschaft'; cf. also *Tractatus* 6.522: 'Es gibt allerdings Unausprechliches. Dies *zeigt* sich, es ist das Mystische'). This unmistakable inclination to mysticism compelled Max Black to correct its not being taken notice of by logical positivism: 'Wittgenstein's "mysticism" is far from being an irrelevant aberration. What he called the "urge towards the mystical" is one of the chief motive powers of the book' (1964: 374). Clearly, the humanistic ideal of personality still

remains the dialectical counterpart of the science-ideal as delimited within the sphere of the unsayable and unthinkable.

7.3 The Kantian opposition of analysis and synthesis

This opposition drawn by Kant (cf. CPR, B. 130), manifesting itself in his mentioned distinction between *analytic* and *synthetic* judgments (cf. B. 10 ff.), is nothing but an after effect of his (implicit) acceptance of Descartes's purely spatial characterization of material bodies. This explains why Kant considered the judgment: 'All bodies are extended' to be analytic, whereas the judgment: 'All bodies are heavy' is seen as synthetic (B,11). But if the characteristic *weight* (mass) is not *analytically* implied in the concept of a physical body, it is, logically viewed, contradictory to predicate weight in a so-called empirical-synthetic sense of the physical body. In other words, if a correct concept of a physical body does not imply (some or other specified form) of this modal physical feature (weight) in an analytical way to begin with, it cannot afterwards be predicated of the body, except illogically. [From: P is non-Q, one cannot infer: P is (such and such) Q.]

In order to get rid of these problems, one should investigate what analysis is all about. To be sure, *analysis* and *abstraction* imply each other reciprocally. To analyze something always implies an act of *identification* and *distinguishing*, and abstraction concerns the lifting out (i.e. identification) of something (or some feature) by disregarding (i.e. distinguishing it from) non-relevant things (or characteristics). In a similar way the two 'legs' of analysis imply each other: identifying something requires the necessary distinction between what is identified and what is distinguished from it (and vice versa). The act of identification, however, amounts to the combination (uniting, bringing together) of all the essential characteristics of that which is identified, clearly showing that this act of concept-formation is simply an act of *synthesis*. (E. Cassirer pointed out that the determination of a concept as 'unity in multiplicity' belongs to the classical legacy of logic and philosophy as such – cf. his: *Philosophie der symbolischen Formen*, Vol. III, Berlin, 1929, p.339.) This insight demonstrates that the Kantian opposition of analysis and synthesis is incorrect: synthesis is not the opposite of analysis, but merely the opposite of the other leg of analysis, namely distinguishing!

In the tradition of reformed philosophy, both Dooyeweerd and Vollenhoven were following this untenable Kantian view. Together with the impact of Kant's distinction between sensibility and understanding (logical and nonlogical), this heritage is responsible for the way in which Dooyeweerd formulated his so-called 'Gegenstand'-relation: 'Here we oppose the logical, i.e. analytical function of our real act of thought, to the nonlogical aspects of our temporal experience' (1969 vol. 1: 39). In my dissertation I critically examined the untenability of this 'Gegenstand'-relation (cf. 1973: 102 ff.). Dooyeweerd's defence (cf. *Philosophia Reformata*, 1975, p.83-101) tried to refute my arguments, but still sidestepped the crucial issue. If, as Dooyeweerd upheld, theoretical thinking is only possible by means of an *inter-modal* (i.e. logical – non-logical) synthesis between the logical function of our real act of thought and the non-logical aspects of experience, then theoretical knowledge [146] of the *logical* aspect itself is impossible. The Gegenstand-relation simply implies that our theoretical-logical acts (of *identification* and *distinguishing*) could only be directed towards non-logical states of affairs. For instance, it implies that the juridical aspect can only be *identified* (compare the identity-proposition: legal is legal) because it is *non-logical* in nature. But then, clearly, the identity-proposition: *logical is logical*, is valid if, and only if, logical is non-logical! (Cf. Strauss, *Begrip en idee*, p.106. It is striking that Dooyeweerd completely sidestepped this particular criticism of mine!)

Unfortunately, lack of 'space and time' disenable us to discuss an alternative approach in terms of (systatical and distatical) logical objectification, and the distinction between logical-empirical-analytical and logical-empirical-synthetical (implying that it is only on the *basis* of the implied analytic structure of a proposition that one can, synthetically, employ *specified* predicates – having weight (mass) must analytically be implied in the concept of a physical body, whereas having this *specific* weight can only be predicated of a particular body in a logical-empirical-synthetical sense).

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[Although the footnotes are inserted within the text, the published version of this article contains them all at the end – on page 146. Also note that page 131 is the first page and page 146 the last page of the article.]